

We claim:

1. A process for measuring electrophysiologic data in a heart chamber comprising the steps of:
 - a) positioning a set of passive electrodes within a patient's heart;
 - b) positioning a set of active electrodes within a patient's heart;
 - c) supplying oscillating current to said set of active electrodes thereby generating an electric field in said heart chamber;
 - d) detecting said electric field at said passive electrode sites, generating a set of electric field measurement data;
 - e) extracting in the frequency domain, from said field measurement data, that component of said field measurement data corresponding to chamber geometry and generating chamber geometry data;
 - f) extracting in the frequency domain, from said field measurement data, that component of said field measurement data corresponding to the underlying intrinsic electrophysiologic activity of the heart chamber, and generating electrophysiology data;
 - g) graphically displaying said chamber geometry data; and
 - h) graphically displaying said electrophysiologic data.
2. A process for measuring electrophysiologic data in a heart chamber comprising the steps of:
 - a) positioning a set of passive electrodes within a patient's heart;
 - b) positioning a set of active electrodes within a patient's heart;

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- c) supplying oscillating current to said set of active electrodes thereby generating an electric field in said heart chamber;
- d) detecting said electric field at said passive electrode sites, generating a set of field measurement data;
- e) extracting in the time domain, from said field measurement data, that component of said field measurement data corresponding to the underlying electrophysiologic activity of the heart chamber, and generating electrophysiology data;
- f) graphically displaying said chamber geometry data; and
- g) graphically displaying said electrophysiologic data.

3. A process for determining and displaying the location of a therapy catheter in a heart chamber comprising the steps of:

- a) positioning a set of passive electrodes within said heart chamber;
- b) positioning a set of active locator electrodes within said heart chamber, said locator electrodes being positioned on a therapy catheter;
- c) supplying oscillating current to said set of active locator electrodes thereby generating an electric field in said heart chamber;
- d) detecting said electric field at said passive electrode sites, *and* generating field measurement data;
- e) extracting in the frequency domain, from said field measurement data, that component of said field measurement data corresponding to locator electrode location and generating location data; and
- f) graphically displaying said location data.